CSc Practical Worksheet 1(Solution)

A'S
Paper 1

Topic: DBMS & SQL

1 A clinic is staffed by several doctors. The clinic serves thousands of patients. Each day and at any one time, there is only one doctor in the clinic available for appointments.

The clinic stores patient, doctor and appointment data in a relational database.

(a) (i) Underline the primary key for each table in the following suggested table designs.

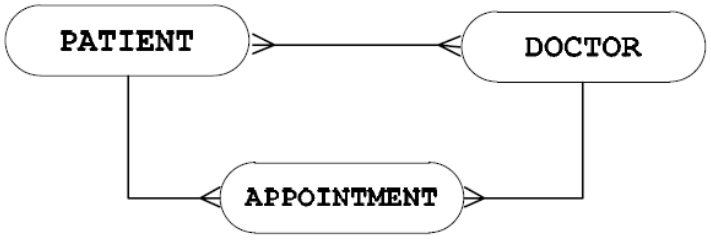
PATIENT(**PatientID**, PatientName, Address, Gender)

DOCTOR(**DoctorID**, Gender, Qualification)

APPOINTMENT(**AppointmentDate**, **AppointmentTime**, DoctorID, PatientID)

[

(ii) Complete the following entity-relationship (E-R) diagram for this design.



(b) The doctors are concerned that many patients make appointments but do not attend them.

Describe the changes to the table designs that could be made to store this information.

Add an attribute (for example `Attended`)
To the appointment table // `APPOINTMENT`

(c) The doctors are about to set up a new clinic in the neighbouring village, SITE-B.

The original location is identified as SITE-A.

A new table is designed to store the ID of the doctor who is able to work at each site.

DOCTOR-AVAILABILITY(DoctorID, Site)

Five entries stored in the table are:

DoctorID	Site
098	SITE-A
074	SITE-A
117	SITE-B
098	SITE-B
033	SITE-B

(i) State what this data shows about the availability of the doctor with the ID of 098.

Site A and Site B

(ii) Opening a new clinic in the neighbouring village will not require any additional table for storing appointments. It will need a change to the existing appointment table design.

Show the revised `APPOINTMENT` table.

APPOINTMENT(Site, AppointmentDate, AppointmentTime,DoctorID, PatientID)

(d) The doctor with the ID of 117 has recently been allocated a new `DoctorID` of 017.

(i) Write an SQL script to update this doctor's record in the database.

```
UPDATE    Doctor
SET DoctorID='017'
WHERE DoctorID='117'
```

(ii) Describe why this update could cause problems with the existing data stored.

Referential integrity should be maintained // Referential integrity could be violated Data becomes inconsistent

(e) Write an SQL script to display the date and time of all appointments made by the patient with the `PatientID` of 556.

```
SELECT AppointmentDate, AppointmentTime
FROM APPOINTMENT
WHERE PatientID = '556';
```

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